Pressinformation

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Cooling buildings with solar heat

Reducing the electricity requirement for cooling and air conditioning

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The cooling demand in buildings is particularly high when the sun shines intensely. Consequently, with solar air conditioning the heating demand and supply are usually consistent with each other. Closed chillers and open sorption methods for direct air conditioning ensure a comfortable indoor climate. The recently published BINE Themeninfo brochure entitled "Cooling with solar heat" presents concepts and technologies for air conditioning buildings.

According to a report for the European Commission, the cooling demand in Europe will quadruple from 1990 to 2020. In some Mediterranean countries, more than half of the electricity produced is used for air conditioning in summer. Solar-based methods can particularly lower the electricity needs at peak load times and thus reduce costs.

Depending on the cooling and air conditioning task, different solar thermal assisted systems can be used when designing non-residential buildings. Experts differentiate between closed and open methods. Closed methods use ab- or adsorption chillers to provide chilled water that is used, for example, in chilled ceilings. Open sorption methods condition the air by reducing not only the temperature but by also ensuring a pleasant indoor air humidity. In terms of the plant technology and collector system, the size, suitability and control of the components must be matched with one another. One advantage of solar thermal systems is that they can be flexibly combined with other heat sources such as industrial waste heat or cogeneration.

The authors of the BINE Themeninfo brochure are experts at the Fraunhofer Institute for Solar Energy Systems and the Bavarian Centre for Applied Energy Research.

The BINE Projektinfo brochure, which can be obtained free of charge from the BINE Information Service at FIZ Karlsruhe, is available online at www.bine.info or by calling +49 (0)228 92379-0. The brochure cover and an additional image can also be downloaded from the press section in this web portal.

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